

**ABSTRACT OF THE DISCLOSURE**

A method and apparatus for optically scanning a pneumatic tire of a vehicle wheel that is rotatably mounted on a measuring shaft of a wheel balancing machine. A light source, such as a laser beam source, is provided to emit at least one light beam onto the surface of the pneumatic tire, which is reflected by the surface and received by a receiver. In response, the receiver produces position signals based on the impingement point of the reflected beam for evaluation by a computer-aided evaluation device. Rotary angle signals representing the rotational angle of the wheel are supplied to the computer-aided evaluation device by a rotary angle sensor. The computer-aided evaluation device determines dimensions and positions of the pneumatic tire or its constituent parts based on the positional signals and the rotary angle signals.